foregoing embodiments are not but mere examples, and different numerical values, structures, materials, source materials and processes and others may be used as well.

More specifically, in the first embodiment, for example, each control signal line **3** has a piezoelectric element structure as a whole; however, the control signal line **3** may have the piezoelectric element structure only at the very intersection with the optical fiber **1** while maintaining the remainder portion as the wiring area.

In the sixth embodiment, although each control signal line **3** is divided into five stripes; however, the divisional number is not limited to this, and may be determined as desired. Additionally, the stripes need not be equal in interval, and it is rather more advantageous to unequalize the intervals of the stripes from the viewpoint of alleviating the directivity of diffraction.

In the seventh embodiment, although the core **1***a* of each optical fiber **1** is made of a liquid containing fine particles **18** dispersed therein, and the fine particles **18** are controlled in position or orientation by an optical field of evanescent light leaking out into the optical fiber **1**, the embodiment can be modified to use the same control signal lines in form of piezoelectric elements as those of the first embodiment such that ultrasonic waves generated by each control signal line **3** propagate from the outer circumferential surface of the optical fiber **1** and control positions of the fine particles **18**.

Further, in the third embodiment, for example, different kinds of liquid may be used to form cores **16***a* of different olfactory representation fibers **16**, respectively, to generate different as many kinds of smells as the number of fibers **16**. If the number of pixels corresponds to that of HDTV, approximately 1 million kinds of smells can be produced. Additionally, when different kinds of liquids are used for individual pixels are used to form cores **16***a* of the olfactory representation fibers **16**, different kinds of smells can be generated from individual pixels. If the number of pixels corresponds to that of HDTV, approximately one million kinds of smells can be generated.

Further, each tactual representation fiber **2**, for example, may be made by using a solid such as plastic as the core **2***a* to interpose a liquid between the cladding **2***b* and the cladding **2***c*. Although this is basically possible also for olfactory representation fibers **16**, cores **16***a* are preferably made of a liquid or liquids to facilitate the supply of fragrant source materials.

In lieu of the CCD line sensors **6**, photo detectors, for example, may be used as well. Further, although the display will lose flexibility in one direction to a certain extent, porous ceramic may be used as the material of the cladding **2***b* of the tactual representation fiber **2** or the cladding **16***b* of the olfactory representation fiber **16**.

As explained above, according to the invention, it is possible to receive and display third sensory information, such as tactual information or olfactory information, in addition to visual information and/or audio information.

Additionally, according to the invention, it is possible to provide an information receiving/display apparatus simple in structure, easy to realize a large-scale information display plane, unlikely to produce distortion along edges of the information display plane during reproduction of a large three-dimensional image when the information display plane is enlarged, quick in response, available for various shapes of the information display plane, including a concave shape, extendible, light, thin and flexible.

What is claimed is:

1. An information receiving/display apparatus configured to receive one of audio information and visual information and to receive one of olfactory information, gustatory information, and tactile information, comprising:

an information display plane, wherein the information display plane presents the information;

a plurality of optical fibers or optical waveguides having liquid cores for visual information;

a plurality of fibers for information for another sensory information having liquid cores;

a plurality of first control signal lines for visual information extending across said optical fibers or optical waveguides;

a plurality of second control signal lines for said another sensory information extending across said fibers;

first piezoelectric elements on outer circumferential surfaces of said optical fibers or optical waveguides at intersections between said optical fibers or optical waveguides and said first control signal lines; and

second piezoelectric elements on outer circumferential surfaces of said fibers at intersections between said fibers and said second control signal lines,

wherein the information display plane is configured to display image information by scattering light introduced into said cores from one end or opposite ends of selected one of said optical fibers or waveguides selected in response to image information to be displayed, by means of bubbles that are generated by cavitation brought about in a liquid forming said core by propagating ultrasonic waves from the outer circumferential surface of said optical fiber or optical waveguide by driving said first piezoelectric element at the intersection between selected said optical fiber or optical waveguide and one of said first control signal lines selected in response to said image information to be displayed, and leading out the scattered light externally, and

wherein the information display plane is configured to form a projection or produce a temperature change on a surface of one of said fibers selected in response to said image information to be displayed, by propagating ultrasonic waves from the outer circumferential surface of selected said fiber by driving one of said second piezoelectric elements at the intersection between selected said fiber and one of one of said second control signal lines selected in response to said image information to be displayed, and/or, said liquid forming said liquid core or molecules of a substance contained in said liquid being emanated from the surface of one of said fibers selected in response to said image information to be displayed.

2. The information receiving/display apparatus according to claim **1** wherein one of said piezoelectric elements at the intersection between selected said fiber and selected said second control signal line is driven to propagate ultrasonic waves from the outer circumferential surface of said fiber and thereby bring about cavitation and generate bubbles in said liquid forming said core, such that a projection is made as representation of tactual information on the surface of said fiber due to a pressure of bubbles.

3. The information receiving/display apparatus according to claim **1** wherein one of said piezoelectric elements at the intersection between selected said fiber and selected said second control signal line to propagate ultrasonic waves from the outer circumferential surface of said fiber to increase the temperature of said liquid forming the core as representation of relative surface temperature information.

4. The information receiving/display apparatus according to claim **1** wherein one of said piezoelectric elements at the